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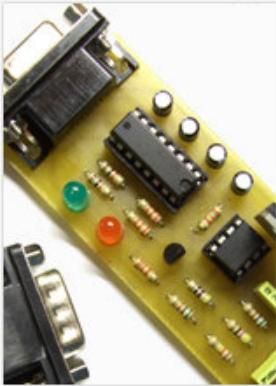
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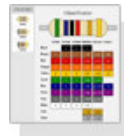
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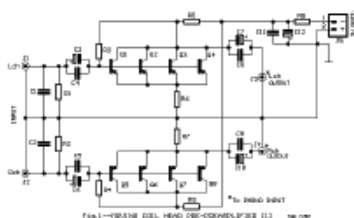
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Miscellaneous - Circuit Database

Pre-amplifier Input From Moving Coil Head



The circuit was designed to implement special category of preamplifiers where the output from a

moving coil head is amplified before passing to the input of the preamplifier.

- Preamplifier (preamp) - a device normally used together with the sound equipment to be of assistance in improving the overall quality of sound by detecting and strengthening weak signals for subsequent and more powerful amplification stages
Recording Industry Association of America (RIAA) – the trade group that represents the recording industry in the United States
- Phono Preamplifier – an electronic circuit that equalizes and amplifies the analog output of the cartridge in a phonograph turntable where the output is increased to intensity equal to other audio sources like CDs and tapes and to restore the original signal, RIAA equalization is required
- BCY71 – a PNP general purpose transistor used for industrial applications, enclosed in a TO-18 metal package with features of low current with 200 mA maximum and low voltage with 45 V maximum

Based on the laws of Physics, the operation of the moving coil head states that all magnetic heads are functioning. This is true if the mechanical force that is proportional to the groove modulation on a phonograph record is used to change the magnetic flux linkage in a coil of wire. A corresponding voltage will be induced in the coil and will be applied to the phono input of a preamplifier to perform the three basic operations such as equalizing for the RIAA recording characteristic, correcting for the time derivative response of the magnetic head, and boosting of gain for the input voltage

The technical standard of frequency response during the manufacturing and playback used on vinyl records with accurate equalization is the main task of the phono preamplifier. This circuit will provide the amplification of signals from the output of moving coil head before it enters the input stage of the phono preamplifier. In any design or construction of moving coil heads, there will always be a problem that will emerge and it is preferred to take extra care on doing this.

A good quality amplifier with low noise and low distortion is necessary to compensate the very low output level of the head with low output resistance. In order to achieve the desired amplification of signals, four BCY71 transistors connected in parallel is used instead of one transistor. By doing this, it will ensure the thermic noise distribution between the four transistors and the type of transistor used has a very low noise characteristic.

The proper adjustment of the head is made possible by the addition of resistors R1 and R2, which can be replaced with other values depending on the type of head used. The circuit can be supplied with a 9 V battery source since the current consumption is only approximately 20 mA or 2 mA for each transistor. The power source will pass a filter made up of R9 & C12 for ensuring a noise-free supply. The whole circuit is recommended to be placed in a sufficient dimension box.

R1-R2=100Ω	C3-C6=100μF 16V	J1...4=RCA female jack
R3-R4=6.8KΩ	C4-C5-C8-C9-C11=100nF 100V	J5=2pin connector 2.54mm step
R5-R8=820Ω	C7-C10=22μF 16V	9V Battery
R6-R7-R9=15Ω	C12=1000μF 16V	All the resistors:1/4W 1% metal film
C1-C2=470pF	Q1.....8=BCY71	

The concept of the circuit is mainly used with the initial input for the phono preamplifier where the very low signal comes from a moving coil head. This will provide great help with moving coil amplifiers for those who are still using long playing LP systems since they still sound better than a CD system.

Source:users.otenet.gr/~athsam/moving_coil_head_preamplifier_1.htm

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sam milby

I know my grannies old LPs are still worth saving using this preamplifier circuit. I was able to recover those songs before we thrashed out the old long playing discs!

tony dela cruz

The DJs in the bars are incorporating this type of preamplifier so that the music will come as loud as the original coming from moving coil heads...

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